



Environmental  
Defenders Office

**Submission in response to the Review of the *Living  
Marine Resources Management Act 1995* Discussion Paper**

**31 March 2022**

## **About EDO**

EDO is a community legal centre specialising in public interest environmental law. We help people who want to protect the environment through law. Our reputation is built on:

***Successful environmental outcomes using the law.*** With over 30 years' experience in environmental law, EDO has a proven track record in achieving positive environmental outcomes for the community.

***Broad environmental expertise.*** EDO is the acknowledged expert when it comes to the law and how it applies to the environment. We help the community to solve environmental issues by providing legal and scientific advice, community legal education and proposals for better laws.

***Independent and accessible services.*** As a non-government and not-for-profit legal centre, our services are provided without fear or favour. Anyone can contact us to get free initial legal advice about an environmental problem, with many of our services targeted at rural and regional communities.

Environmental Defenders Office is a legal centre dedicated to protecting the environment.

**[www.edo.org.au](http://www.edo.org.au)**

Submitted to:

LMRMA Review – Marine Resources

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### **A Note on Language**

We acknowledge that there is a legacy of writing about First Nations people without seeking guidance about terminology. In this submission, we have chosen to use the term 'First Nations' to refer to Aboriginal and Torres Strait Islander peoples across Australia. We also acknowledge that where possible, specificity is more respectful. When referring to Tasmanian Aboriginal / palawa / pakana people in this submission we have used the term 'Tasmanian Aboriginal'. We acknowledge that not all Aboriginal Islander peoples may identify with these terms and that they may instead identify using other terms.

EDO gratefully acknowledges the assistance of Kate Johnston in the preparation of this submission.

As Tasmania is an island state, the lifestyle of its inhabitants is deeply connected to the ocean and its resources. For thousands of years, Tasmanian Aboriginal people drew upon and sustainably managed Tasmania's oceans, estuaries and rivers. Since colonisation, many coastal industries and uses have emerged. Tasmania's commercial fishing industry is currently worth \$110 million a year and it was worth considerably more before the COVID-19 pandemic.<sup>1</sup> The aquaculture industry (which includes salmon farming) is among Tasmania's fastest growing industries and is currently valued at \$950 million a year.<sup>2</sup> Recreationally, more than a fifth of Tasmania's population fish each year,<sup>3</sup> with many more people enjoying Tasmania's coasts and oceans through swimming, surfing, snorkeling, diving or other watersports. Increasingly, these industries and cultural and recreational uses are coming into conflict, while marine and coastal ecosystems are facing unprecedented pressures.

Tasmania is globally recognised for its biodiverse and rich coastal and oceanic waters, due in large part to the mixing of a variety of different oceanic currents. Many of the species of flora and fauna found in Tasmania's waters are endemic, meaning that they are found nowhere else on earth. However, Tasmania also has the dubious distinction of recording Australia's first marine animal extinction, with the Derwent River Seastar (*Marginaster littoralis*) disappearing sometime after 1991,<sup>4</sup> and the world's first marine fish extinction, with the Smooth Handfish (*Sympterychthys unipennis*) being declared extinct in 2018.<sup>5</sup> There are at least 40 other Tasmanian marine species and communities which are listed as being under threat of extinction (such as the Spotted, Red and Ziebell's Handfish, Maugean Skate, and the Giant Kelp Marine Forests), although given the low level of scientific monitoring effort there are likely to be many more. As a result of the increased predation by introduced species and warming waters, over 95 per cent of Tasmania's Giant Kelp Marine Forests have already been lost.<sup>6</sup> Tasmania's rocky reefs have suffered an unprecedented damage from the introduced Longspined Sea Urchin (*Centrostephanus rodgersii*). By 2017, nearly 15 percent of Tasmania's east coast reefs had been converted to "urchin barrens",<sup>7</sup> and scientists predict that more than half of those reefs will become barrens if nothing is done to mitigate climate change.<sup>8</sup>

The waters off eastern Tasmania are recognised as a global warming hotspot, with the ocean warming up to four times faster than the global average as a result of the southerly extension of the warm East Australia Current.<sup>9</sup> Models predicting the impact of climate change on Tasmania's marine environments also warn of rapidly warming surface sea temperatures, rising sea levels, acidification, current and circulation changes and increased storm and wave intensity.<sup>10</sup>

In the face of these increasing and unprecedented threats to Tasmania's coasts and oceans and associated resources, EDO commends the Tasmanian Government for commencing a review of Tasmania's principal marine management legislation, the *Living Marine Resources Management Act 1995* (the **Act**). The terms of reference of the review of the Act require it to establish:

1. The extent to which the objects of the Act are being achieved;
2. The extent to which the Act provides a sound foundation and framework for living marine resource management in Tasmania;
3. The extent to which the Act aligns with current best practice fisheries and marine resource management principles (compared to other Australian and international jurisdictions);

4. The extent to which the Act is flexible and prepares Tasmania for future risks and challenges associated with the marine environment.

As the first step in the review, EDO welcomes this opportunity to respond to the *Modernising Tasmania's Fisheries Legislation: A Review of the Living Marine Resources Management Act 1995 Discussion Paper* dated February 2022 (**Discussion Paper**). The Discussion Paper provides a good overview of how the Act currently operates, however, it is disappointing that the paper does not specifically address the challenges posed by the climate change or the extinction crises, being two of the greatest risks and challenges facing Tasmania's marine environment. Further, the fact that Discussion Paper does not canvass in any detail what might be considered best practice in terms of fisheries and marine resource management hampers comment in response to the terms of reference for the review.

EDO participated in a review stakeholder consultation forum on 1 March 2021. The following submission is in addition to the comments provided by EDO in response to the Discussion Paper in that forum.

In this submission, EDO addresses the terms of reference of the review by:

1. responding to the question of whether the Act is currently achieving its objectives, including whether it enables the Tasmanian Aboriginal community to provide for its cultural well-being; and
2. providing recommendations for reform to bring the Act in line with best practice fisheries and marine resource management principles and enable managers to deal with future risks associated with climate change and intensification of industries.

EDO's submission can therefore be seen as broadly responding to themes one and two of the Discussion paper.

In responding to the Discussion Paper, EDO acknowledges that it cannot and does not speak on behalf of Tasmanian Aboriginal people. EDO makes the following submission and recommendations as experts in planning and environmental law with experience in seeking to protect First Nations cultural heritage through the law. EDO notes that many of the recommendations of the *Pathway to Truth-Telling and Treaty* report are relevant to the management of lands and waters and Tasmanian Aboriginal cultural heritage and that the Tasmanian Government will be formally responding to these recommendations imminently, including through the drafting of a new Aboriginal Cultural Heritage Act. EDO's submission in response to the Discussion Paper is made in the context of these broader and related processes and reforms, which we expect will give expression to the principles of the United Nations Declaration on the Rights of Indigenous Peoples, including in Articles 18 and 19.<sup>11</sup>

A summary of our recommendations can be found below.

## Summary of recommendations

**Recommendation 1:** Any new or amended Act should acknowledge Tasmanian Aboriginal people as the traditional and original owners of Tasmanian lands and waters and recognise the enduring spiritual, social, cultural and economic importance of Tasmanian lands and waters to the Aboriginal people.

**Recommendation 2:** Any new or amended Act should give effect to the *Pathway to Truth-Telling and Treaty* recommendations relevant to the Act, and require Tasmanian Aboriginal representation on relevant planning, fisheries and habitat advisory committees.

**Recommendation 3:** One of the principal objectives of any new or amended Act should be to achieve integrated and ecosystem-based management of Tasmania's marine and coastal areas.

**Recommendation 4:** The scope of any new or amended Act should provide for integrated and ecosystem-based management through participatory marine spatial planning processes; integrated ecosystems, cumulative impact and risk assessments; and participatory and structured decision-making.

**Recommendation 5:** One of the principal objectives of any new or amended Act should be to ensure the risks climate change poses to Tasmania's living marine resources are taken into account in its management.

**Recommendation 6:** Any new or amended Act should include the precautionary principle as a key objective and principle in decision making for the management of Tasmania's living marine resources.

**Recommendation 7:** To respond to climate change, any new or amended Act should include adaptive management as an objective and require clearly defined adaptive management tools to be implemented in line with the precautionary principle.

**Recommendation 8:** Any new or amended Act should provide for comprehensive monitoring of Tasmania's marine and coastal environments and regular public reporting on the state of the environment.

**Recommendation 9:** Any new or amended Act should reaffirm the objective of providing for the protection of Tasmania's marine and coastal environment through the establishment of comprehensive, adequate and representative marine protected areas (or marine resources protected areas) to conserve Tasmania's globally significant marine values.

### 1. Achievement of objects

The long title of the Act describes it as "An Act to promote the sustainable management of living marine resources, to provide for management plans relating to fish resources, to protect marine habitats and to repeal the Fisheries Act 1959".

The Act's stated purpose is to:<sup>12</sup>

...achieve sustainable development of living marine resources having regard to the need to:

- (a) increase the community's understanding of the integrity of the ecosystem upon which fisheries depend; and
- (b) provide and maintain sustainability of living marine resources; and
- (ba) take account of a corresponding law; and
- (c) take account of the community's needs in respect of living marine resources; and
- (d) take account of the community's interests in living marine resources.

A person exercising a function or power under the Act must do so in a way that furthers the objectives of Resource Management (being the Resource Management and Planning System (**RMPS**) objectives shared with other Tasmanian environmental and planning laws).<sup>13</sup> Importantly, the RMPS objectives include the objective of “the sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity” with “sustainable development” further defined as:<sup>14</sup>

... managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety while –

- (a) sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations; and
- (b) safeguarding the life-supporting capacity of air, water, soil and ecosystems; and
- (c) avoiding, remedying or mitigating any adverse effects of activities on the environment.

Only **two** of the long title objectives have clearly been achieved: the repeal of the Fisheries Act 1959,<sup>15</sup> and the provision of management plans relating to fish resources.<sup>16</sup> We note three key areas of deficiency in meeting the Act’s other objectives:

- community interests in terms of cultural well-being and safety;
- protecting marine habitats, particularly by establishing marine protected areas; and
- sustainable management of living marine resources.

### **1.1 Cultural well-being, health and safety**

EDO welcomes the recent decision of the Tasmanian Government to sign over 40 abalone quota units to the Land and Sea Aboriginal Corporation of Tasmania, however, more needs to be done to recognise Aboriginal cultural and fishing rights. Despite reference in the Act objectives to taking “account of the community's interests in living marine resources” and to enabling “people and communities to provide for their social, economic and cultural well-being” in the definition of sustainable development, the Act does little to further this objective by providing recognition of Aboriginal cultural heritage and fishing rights. While “Aborigines” engaging in “Aboriginal activities”<sup>17</sup> may be exempt from the need for certain fisheries licenses and may be provided for in management plans, in the Act there is no:

- broad recognition of the continuing custodianship of Tasmanian Aboriginals of Sea Country nor their rights relating to the management and use of Sea Country;
- provision for Tasmanian Aboriginal involvement in decision-making on matters which may affect or impact on their cultural heritage in Sea Country;

- provision for quotas for the Tasmanian Aboriginal community in Total Allowable Catch (TAC) for all culturally significant fisheries; or
- Tasmanian Aboriginal representation on advisory committees for fisheries.

### **1.2 Marine protected areas**

EDO notes that the Terms of Reference for the review of the Act specifically exclude the Tasmania's Government's policy of no new marine reserves, however, as the Act deals with the protection of marine areas and habitat and this is specifically referred to in objectives of the Act, these issues clearly fall within the scope of the review.

Since the Act was introduced, a number of shark refuge areas and no take areas for octopus have been created under the *Scalefish Rules 2015*, some noxious fish have been declared, and there are prohibitions on the taking on certain fish (including handfish, seahorses, sea dragons, certain sharks and limpets).<sup>18</sup> Other rules provide prescribed methods for take and gear restrictions with the object of protecting certain marine species. However, these protections are limited to certain species and do not necessarily protect the boarder marine habitat from impacts from fisheries in a holistic or integrated way.

As no marine habitat protection plans or marine resources protected areas have been declared since the Act was introduced, it is arguable that the Act has largely failed to its long-title objective to "protect marine habitats". Indeed, Tasmania has the lowest level of protection for marine areas of any of Australia's seaboard states and territories,<sup>19</sup> with only 2.7% of its coastal waters protected in some way, and 1.1% within highly protected "no-take" zones.<sup>20</sup> Only four out of Tasmania's nine distinct bioregions are represented in any marine protected areas,<sup>21</sup> meaning there are many distinct ecological assemblages and communities that are completely unrepresented and unprotected from fishing and other threats.

### **1.3 Sustainability - emerging threats and risks**

It is difficult to assess the success (or otherwise) of the Act in achieving the other sustainability objectives for living marine resources as the Tasmanian Government has not reported on the condition of the coastal and marine environment for over a decade.<sup>22</sup> Even then, the Tasmanian State of the Environment Report in 2009 found that it was not possible to describe the state or trends in the conditions of estuarine, coastal and marine environments due to incomplete descriptions and inconsistent monitoring. Similarly, the distribution and impacts of introduced marine species and diseases was reported as being largely unknown and unstudied (although it was noted that the effects of marine pests were increasing).<sup>23</sup> These findings were mirrored in the Australian State of the Environment Report (2016) which found there was a lack of coordinated and robust monitoring effort for the marine environment which made it difficult to assess the status and trends for many marine habitats.<sup>24</sup>

Despite the lack of coordinated sustainability reporting on Tasmania's marine environment, there are indications that Tasmania's marine ecosystems are facing increasing pressures.

For example, the Discussion Paper identifies eight of the thirty commercial fisheries target species as either "depleted" or "depleting".<sup>25</sup> These concerning stock levels are despite management plans being in place for these fisheries. Even where the status of target species is listed as

“sustainable”, this descriptor might mask a significant reduction in fish stocks from their original, unfished levels.<sup>26</sup> One possible explanation for the failure of management plans to maintain “sustainable” fish stocks for managed fisheries is that the Act is silent on the methodologies for the preparation of management plans, and the scientific information and consultation both in the fishing and other sectors required to inform them.<sup>27</sup>

Aquaculture is also rapidly expanding in Tasmania’s waters, with plans for increased “oceanic” farming of Atlantic salmon already being implemented in Storm Bay.<sup>28</sup> The Tasmanian Government has earmarked large areas in the north and north-west for potential salmon farming expansion from 2023.<sup>29</sup> However, there are real questions about the social and environmental impacts of the salmon farming already being undertaken in our coastal waters. One concerning example of such environmental impacts is the benthic “dead zones” and low dissolved oxygen caused by salmon farms in the World Heritage-listed Macquarie Harbour, which has placed the endangered Maugean Skate (*Zearaja maugeana*) under further threat of extinction.<sup>30</sup> In EDO’s experience, communities living close to salmon farms regularly complain of the farms’ pollution (including noise, nutrients and marine debris) and of their impacts on habitats and species such as seagrass, seals and birds.<sup>31</sup> Recreational fishers and boaters also complain about the impacts of the aquaculture industry effectively excluding other users and creating navigational hazards in coastal waters.<sup>32</sup> While aquaculture is regulated under the Act through the grant of marine farming licences,<sup>33</sup> particularly with salmon farming, there is a lack of clarity about what is and is not addressed in an assessment of an application for, or as a condition of, a marine farming licence.<sup>34</sup> It is also unclear if or how impacts of aquaculture on other marine users, fisheries and habitats are considered and managed under the licensing process provided by the Act.

There are also a range of other activities, such as land-based developments and agriculture and emerging industries (including energy generation and carbon capture projects associated with the growth of the so-called “Blue Economy”) that are not regulated under the Act, but which have or are likely to have an increasing impact on living marine resources, either directly or indirectly (for example, through pollution and impacts on water quality). It is notable that protection for coastal areas has markedly been reduced through recent Tasmanian Planning Commission decisions to remove environmental management zoning along Tasmania’s coastlines,<sup>35</sup> and with the reduction of waterway and coastal protection areas to the minimum extent in many zones under the State Planning Provisions.<sup>36</sup>

Anthropogenic climate change is recognised by scientists as one of the “foremost threats to the marine environments”. Vast tracts of Tasmania’s rich rocky reefs and Giant Kelp Marine Forests are under threat or have been lost as a result of rapidly warming waters and introduced pests, which are expected to become more prevalent with climate change. Climate change will also increase marine heatwaves (such as those seen off Tasmania’s east and west coasts in recent years) and storms, and result in sea level rise, ocean acidification, and changes to ocean currents and circulation.<sup>37</sup>

The effects of climate change are already being experienced by Tasmania’s fisheries and aquaculture industries. For example, Tasmanian salmon farms are now regularly reporting mass mortality events involving the loss of tens of thousands of fish due to warming waters,<sup>38</sup> and are grappling with related issues such as decreased dissolved oxygen, disease outbreaks like Amoebic



Gill Disease, and jellyfish impacts.<sup>39</sup> The first occurrence of Pacific Oyster Mortality Syndrome in Tasmania occurred after an extreme marine heatwave off Tasmania's east coast in 2016, which resulted in the loss of over 5 million oysters and costed the industry in excess of \$12 million.<sup>40</sup> That same extreme marine heatwave heavily impacted the salmon industry and other commercial fisheries, and there were many observations of "out-of-range" northern species in Tasmania's waters.<sup>41</sup> The increase in urchin barrens as a result of climate change is placing pressure on the Rock Lobster and Abalone Fisheries.<sup>42</sup> Despite the enormous risks posed by climate change to Tasmania's living marine resources and their habitats, the Act is silent on how these risks should be considered or managed.<sup>43</sup>

Considering these existing and future threats to the sustainability of Tasmanian's living marine resources, extensive changes are required to the scope and objects of the Act to allow for the achievement of sustainability.

## **2. Reform to objects and scope of Act**

EDO is supportive of many of the Act's existing objectives and scope, however, it is clear the objectives and scope need to be strengthened, expanded and effectively implemented to properly acknowledge Tasmanian Aboriginal custodianship and cultural heritage in Sea Country and deal with existing and emerging threats to Tasmania's marine environment. Specifically, the next section of the submission outlines EDO's recommendations for reform of the Act's objectives and scope to address issues relating to:

- Tasmanian Aboriginal cultural and fishing rights;
- Integrated and ecosystems-based management;
- Climate change; and
- Precautionary principle and adaptive management.

### **2.1 Tasmanian Aboriginal cultural and fishing rights**

Consistent with the Pathway to Truth-Telling and Treaty recommendations, any new or amended Act's objectives and scope should be strengthened to recognise Tasmanian Aboriginal custodianship over Sea Country and cultural and fishing rights. This should include the Act being amended to:

- acknowledge Tasmanian Aboriginal people as the traditional and original owners of Tasmanian lands and waters and recognising the enduring spiritual, social, cultural and economic importance of Tasmanian lands and waters to the Aboriginal people;<sup>44</sup>
- provide pathways for the development of Tasmanian Aboriginal commercial cultural fisheries;<sup>45</sup>
- allow for the recognition of titles of coastal Aboriginal land and land owned by Aboriginal organisations to the low water mark, as well as the grant of exclusive fishing zones adjacent to these areas.<sup>46</sup>

Furthermore, the Act should be amended to require Tasmanian Aboriginal representation on relevant planning, fisheries and habitat advisory committees.<sup>47</sup>

**Recommendation 1:** Any new or amended Act should acknowledge Tasmanian Aboriginal people as the traditional and original owners of Tasmanian lands and waters and recognise the enduring spiritual, social, cultural and economic importance of Tasmanian lands and waters to the Aboriginal people.

**Recommendation 2:** Any new or amended Act should give effect to the *Pathway to Truth-Telling and Treaty* recommendations relevant to the Act, and require Tasmanian Aboriginal representation on relevant planning, fisheries and habitat advisory committees.

## **2.2 Integrated and ecosystems-based management**

The 2016 Australian State of Environment Report found that “improved monitoring, reporting and implementation of decision-making support tools will be required to address the increasing complexity of managing marine resources facing increasing pressures, and to ensure that management frameworks can be adaptive and satisfy community expectations”.<sup>48</sup> Current, sector-based approaches to coastal and marine management have been observed as having the following deficiencies:<sup>49</sup>

- 1) management of activities that overlap or interact in the coastal marine environment is undertaken by different agencies using different approaches;
- 2) management is generally focused on a subset of objectives and does not properly articulate or institutional objectives that make up a comprehensive view of management;
- 3) there is no current mechanism to evaluate or advise on trade-offs among objectives or between activities in relation to objectives; and
- 4) there is no mechanism for evaluating the cumulative effects of all managed activities.

Integrated and ecosystems-based management is recognised as a best practice approach to overcome these deficiencies and provide for the effective management of the complexity of the marine environment and its users.<sup>50</sup> Furthermore, the use of integrated and ecosystems-based management can more effectively provide opportunities for the incorporations of First Nations’ knowledge and involvement in coastal and marine management.<sup>51</sup>

Integrated and ecosystems-based management approaches take “a whole of system view and seek[s] to address interactions between multiple sectors”, including by recognising “connections between marine, coastal and terrestrial systems as well as between ecosystems and human societies” and institutions.<sup>52</sup> They aim to “maintain marine ecosystems in a healthy, productive and resilient condition” and “sustain human uses of the oceans and provide goods and services”.<sup>53</sup>

Stakeholder participation is vital for an effective and integrated management system that adapts to climate change.<sup>54</sup> While implementing truly integrated and ecosystem-based management can be challenging, implementation can be aided through using tools such as:<sup>55</sup>

- broadly consultative and participatory marine spatial planning processes;
- integrated systems modelling;
- integrated ecosystems, cumulative impact and risk assessments; and
- participatory and structured decision-making, which enables trade-offs between sectors and objectives to be made explicit.

Victoria's *Marine and Coastal Act 2018* provides one recent example of where an integrated ecosystems-based management approach is being implemented. This Act provides for the development of an overarching state coastal and marine policy, including a marine spatial planning process, which aims to achieve integrated and coordinated planning and management across the entire marine environment. The Act also provides for:

- the creation of an independent marine and coastal council responsible for providing advice to the Victorian government on policies, decisions and science;
- marine and coastal environment reporting;
- regional and strategic partnerships between different bodies;
- environmental management planning for heavily used areas; and
- improved local planning, decision-making and enforcement.

One of the advantages of the approach adopted in Victoria is that it does not create an entirely new regulatory process or regime to manage diverse sectors, but rather it overlays existing regimes with an overarching policy and decision-making framework.<sup>56</sup>

**Recommendation 3:** One of the principal objectives of any new or amended Act should be to achieve integrated and ecosystem-based management of Tasmania's marine and coastal areas.

**Recommendation 4:** The scope of any new or amended Act should provide for integrated and ecosystem-based management through participatory marine spatial planning processes; integrated ecosystems, cumulative impact and risk assessments; and participatory and structured decision-making.

### **2.3 Climate change**

As the principal emerging threat to Tasmania's marine and coastal environments, the Act's objects and scope should properly recognise and address climate change.

Integrated and ecosystems-based management requires the latest scientific observations and climate change modelling and risk assessments for the coastal and marine environment to inform a broadly consultative and participatory marine spatial planning exercise. This in turn, should ensure that the latest climate science is informing planning and regulatory decision-making across all coastal and marine sectors.<sup>57</sup>

**Recommendation 5:** One of the principal objectives of any new or amended Act should be to ensure the risks climate change poses to Tasmania's living marine resources are taken into account in its management.

### **2.4 Precautionary principle and adaptive management**

The FAO recognises the taking of precautionary and adaptive approaches as two of the key foundations for the creation of climate-resilient fisheries. This is because:<sup>58</sup>

...information on forecasted impacts of climate change on specific marine ecosystems and fisheries is still limited and subject to high levels of uncertainty. Fishery stakeholders and managers ... need to be prepared to cope with these impacts and to deal with the significant degree of uncertainty associated with them. Managing fisheries in the face of climate change is therefore a special case of decision-making that must consider the additional uncertainty and risk arising from climate

impacts. It requires additional emphasis on the broad uptake of established strategies for risk management, such as the precautionary approach and adaptive management.

While there are a variety of definitions for the precautionary principle, it is generally accepted that it means that where there are threats of serious or irreversible environmental damage, scientific uncertainty as to these threats should not be used as a reason for postponing measures to prevent environmental degradation.

Given its obvious importance and relevance to the management of fisheries, particularly in light of the increasing uncertainty about climate-related impacts on marine ecosystems, the omission of the precautionary principle from the Act is glaring and should be rectified in any new or amended Act.

**Recommendation 6:** Any new or amended Act should include the precautionary principle as a key objective and principle in decision making for the management of Tasmania's living marine resources.

If properly applied together with a precautionary approach, adaptive management can be a useful tool to allow for flexibility in management responses to unexpected environmental conditions.

The Act currently allows for some adaptive management. For example, relatively quick change of TACs or quotas for certain fisheries can be made to respond to changing conditions. However, these changes tend to be reactive, responding to observed changes rather than being incorporated into forward-looking management planning processes.<sup>59</sup> EDO also is concerned that, too often in Tasmania, marine activities are allowed to proceed under the guise of adaptive management where there is insufficient scientific information about the baselines, trigger points and the effectiveness and appropriateness of so-called adaptive management actions.

The best example of this was the rapid expansion of the salmon farming industry in Macquarie Harbour from 2012 which proceeded notwithstanding there being insufficient baseline data, inappropriate and inaccurate modelling, and a lack of clarity around the trigger points and management actions to be applied. This has resulted in the critically endangered Maugean Skate being put at real risk of extinction. As can be seen from this example, adaptive management is only appropriate in circumstances where sufficient baseline data is available to set thresholds and predict environmental responses to proposed management controls with an acceptable level of confidence. It does not lend itself to scenarios where the environmental impacts of the activities are potentially serious or irreversible (such as loss of critically endangered species) or where too little is known to reliably anticipate risks.

For adaptive management to be effective, it must involve the following:<sup>60</sup>

- The setting of clear objectives and measurable performance indicators for management to ensure that the management approach will not give rise to the risk of serious or irreversible environmental harm;
- The specification of multiple management options;
- Hypothesising how the system under management will respond to management interventions;
- Implementing management action(s);
- Monitoring the system response to see if it supports the hypothesis of otherwise; and

- Based on the analysis results, refining and adjusting management practice.

In the face of increasing uncertainty arising from climate change, adaptive management should be included as an objective and clearly defined adaptive mechanisms (including the above-listed elements) should be provided under any new or amended Act. These adaptive mechanisms will allow for regulators to respond to changing conditions and unforeseen circumstances while at the same time ensuring they adopt precautionary approach to management.

**Recommendation 7:** To respond to climate change, any new or amended Act should include adaptive management as an objective and require clearly defined adaptive management tools to be implemented in line with the precautionary principle.

As already noted above, for adaptive management to be effective, comprehensive monitoring of Tasmania's marine and coastal environments is required to, as far as possible, establish current baselines. For example, baselines should be established for habitat condition, fish stocks, water quality and conditions, noise, and pollution. Effective implementation of adaptive management also requires rigorous monitoring and reporting to identify when triggers are activated, and to measure the effectiveness of management responses. Monitoring of these elements also needs to be undertaken regularly to ensure that scientific observations and trends are properly incorporated into planning and decision-making frameworks. Furthermore, public reporting on the state of the marine and coastal environment needs to resume, to allow the community to assess the effectiveness of marine resource management under the Act.

**Recommendation 8:** Any new or amended Act should provide for comprehensive monitoring of Tasmania's marine and coastal environments and regular public reporting on the state of the environment.

One practical and effective means of applying a precautionary approach to the management of the marine environment is to ensure there is a comprehensive, adequate and representative system of marine areas that are protected from extractive uses.<sup>61</sup> No marine resources or habitat protected areas can guard against climate change, but these areas can provide refugia and give species and habitat their best chance to adapt to changing conditions outside of other pressures, such as commercial and recreational fishing and emerging industries.

Consistent with the Act's other objectives, providing for marine protected areas can also work to strengthen the community's understanding of and respect for the integrity of the ecosystems upon which fisheries depend, and provide important opportunities for scientific research of climate change impacts (relatively) free of other pressures.

While we understand that the Government's policy of no new marine reserves is currently outside the scope of the review of the Act, EDO considers that it is vital that consideration be given to how the Act can effectively provide for habitat protection as part of a best-practice marine and coastal management framework.

**Recommendation 9:** Any new or amended Act should reaffirm the objective of providing for the protection of Tasmania's marine and coastal environment through the establishment of comprehensive, adequate and representative marine protected areas (or marine resources protected areas) to conserve Tasmania's globally significant marine values.

## ENDNOTES

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- <sup>1</sup> Marine Resources Division, Department of Natural Resources and Environment Tasmania (2022) *Modernising Tasmania's Fisheries Legislation: A Review of the Living Marine Resources Management Act 1995: Discussion Paper*, p 15.
- <sup>2</sup> Ibid.
- <sup>3</sup> Ibid, p 16.
- <sup>4</sup> O'Hara, T., Mah, C., Hipsley, C., Bribiesca-Contreras, G. & Barrett, N.(2019) 'The Derwent River Seastar: re-evaluation of a critically endangered marine invertebrate', *Zoological Journal of the Linnean Society*, Volume 186, Issue 2, pp 483–490, <https://doi.org/10.1093/zoolinlean/zly057>.
- <sup>5</sup> Although this extinction listing by the IUCN was later converted to “data deficient”. See Last, P., Edgar, G. & Stuart-Smith, R. (2020) *Sympterychthys unipennis*. *The IUCN Red List of Threatened Species 2020*: e.T123423283A123424374. <https://dx.doi.org/10.2305/IUCN.UK.2020-1.RLTS.T123423283A123424374.en>. Accessed on 26 March 2022.
- <sup>6</sup> Johnson, C., Banks, S., Barrett, N., Cazassus, F., Dunstan, P., Edgar, G., Frusher, S., Gardner, C., Haddon, M., Helidoniotis, F., Hill, K., Holbrook, N., Hosie, G., Last, P., Ling, S., Melbourne-Thomas, J., Miller, K., Pecl, G., Richardson, A., Ridgway, K., Rintoul, S., Ritz, Ross, J., Sanderson, C. Shepherd, S., Slotwinski, A., Swadling, K. & Taw, N. (2011) 'Climate change cascades: shifts in oceanography, species' ranges and subtidal marine community dynamics in eastern Tasmania', *Journal of Experimental Marine Biology and Ecology*, Volume 400, Issues 1-2, pp17–32.
- <sup>7</sup> Ling, S.& Keane, J. (2018) *Resurvey of the Longspined Sea Urchin (Centrostephanus rodgersii) and associated barren reef in Tasmania*, Institute for Marine and Antarctic Studies Report. University of Tasmania, Hobart.
- <sup>8</sup> Ibid.
- <sup>9</sup> Oliver, E., Lago, V., Hobday, A., Holbrook, N., Ling, S. & Mundy, C. (2018) Marine heatwaves off eastern Tasmania: Trends, interannual variability, and predictability', *Progress in Oceanography*, Volume 161, pp 116-130. See also Hosier, P. (2020) 'These waters off Tasmania's east coast are warming up to four times faster than global average', Australian Broadcasting Corporation, Posted 8 February 2020, Updated 23 June 2021, <https://www.abc.net.au/news/2020-02-08/tasmania-east-coast-warming-four-times-global-average/11889628>.
- <sup>10</sup> CSIRO and Bureau of Meteorology (2015) *Climate Change in Australia Information for Australia's Natural Resource Management Regions: Technical Report, Ch. 8 Projections (and recent trends): marine and coasts*, and Grose, M. et al. (2015) *Southern Slopes Cluster Report, Climate Change in Australia Projections for Australia's Natural Resource Management Regions: Cluster Reports*, eds. Ekström, M. et al., CSIRO and Bureau of Meteorology, Australia, <https://www.climatechangeinaustralia.gov.au/en/communication-resources/reports/>
- <sup>11</sup> Article 18 provides that indigenous peoples have the right to participate in decision-making in matters which would affect their rights, through representatives chosen by themselves. Article 19 requires states to cooperate in good faith with indigenous peoples' representatives and seek their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them.
- <sup>12</sup> *Living Marine Resources Management Act 1995*, s 7(1).
- <sup>13</sup> *Living Marine Resources Management Act 1995*, s 7(2).
- <sup>14</sup> *Living Marine Resources Management Act 1995*, Schedule 1.
- <sup>15</sup> See *Living Marine Resources Management Act 1995*, Schedule 2.
- <sup>16</sup> Under the Act, fisheries management plans are in the form of prescribed rules. There are currently 10 sets of rules applying to fisheries in Tasmania, See *Discussion Paper*, p 24.
- <sup>17</sup> These activities are defined under section 3 of the Act as “(a) the non-commercial use of the sea and its resources by Aborigines; and (b) the taking of prescribed fish by Aborigines for the manufacture, by Aborigines, of artefacts for sale; and (c) manufacturing of the kind referred to in paragraph (b).”
- <sup>18</sup> Under the *Fisheries (General and Fees) Regulations 2016*.
- <sup>19</sup> Evans, K., Bax, N. & Smith, D. (2017). *Australia state of the environment 2016: marine environment, independent report to the Australian Government Minister for the Environment and Energy*, Australian Government Department of the Environment and Energy, Canberra, Table MAR8, p 125.
- <sup>20</sup> Ibid, and Carr, E. & Minshull, L. (2020) *Towards a sustainable marine management regime*

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*An update on Tasmanian progress*, Australia Institute and Tasmanian Independent Science Council, p 3.

<sup>21</sup> Ibid, p 16.

<sup>22</sup> The last State of the Environment report was published by the Tasmanian Planning Commission in 2009, despite there being a statutory obligation to publish these reports every 5 years: *State Policies and Projects Act 1995*, s 29.

<sup>23</sup> Tasmanian Planning Commission (2009) *State of the Environment Report: Tasmania 2009*, Tasmanian Planning Commission, Tasmania.

<sup>24</sup> Evans, K., Bax N. & Smith D. (2016), above n 19.

<sup>25</sup> See *Discussion Paper*, p 8.

<sup>26</sup> For example, the Southern Rock Lobster fishery is listed as “sustainable” but this level is set by reference to lobster egg production of just 20 per cent of unfished levels. See Linnane, A. McGarvey, R., Gardner, C., Hartmann, K., Victorian Fisheries Authority & De Lestang, S. (2021) *Southern Rock Lobster (Jasus edwardsii) Report (2020)*, Fisheries Research and Development Corporation, <https://www.fish.gov.au/report/294-Southern-Rock-Lobster-2020>.

<sup>27</sup> See *Discussion Paper*, p 29.

<sup>28</sup> Department of Primary Industries Parks Water and Environment (2017) *Sustainable industry growth plan for the salmon industry*, <https://nre.tas.gov.au/Documents/salmonplan.pdf>

<sup>29</sup> Ainsworth, K. (2021) ‘Tasmania’s coastal waterways earmarked for salmon farming expansion plans’, Australian Broadcasting Corporation, Posted 19 September 2021 <https://www.abc.net.au/news/2021-09-19/secret-maps-show-tasmanian-salmon-farming-expansion-plans/100473598>.

<sup>30</sup> Moreno, D., Lyle, J., Semmens, J., Morash, A., Stehfest, K., McAllister, J., Bowen, B. & Barrett, N. (2020) *Vulnerability of the endangered Maugean Skate population to degraded environmental conditions in Macquarie Harbour*, Fisheries Research and Development Corporation Project No. 2016-068. Institute for Marine and Antarctic Studies, University of Tasmania, Hobart.

<sup>31</sup> These serious concerns are reflected in the numerous submissions to the Legislative Council Inquiry into Fin Fish Farming (*Fin Fish Inquiry*), [https://www.parliament.tas.gov.au/ctee/Council/GovAdminA\\_Fin.html](https://www.parliament.tas.gov.au/ctee/Council/GovAdminA_Fin.html)

<sup>32</sup> See for example the TARFish submission to the Fin Fish Inquiry, <https://www.parliament.tas.gov.au/ctee/Council/Submissions/FIN%20FISH/Submissions%201%20-%20125/63%20TARFish.pdf>

<sup>33</sup> A marine farming licence is required to carry out marine farming in state waters: *Living Marine Resources Management Act 1995*, s 64(1).

<sup>34</sup> We note that there are a range of other approvals required by salmon farms, for example, under the *Marine Farming Planning Act 1995* and *Environmental Management and Pollution Control Act 1994*, but these Acts do not clearly delineate the scope of the environmental assessment and approvals processes under each of the Acts, which can result in regulatory failures. An example of this is the lack of conditions regulating marine farming noise in approvals for salmon farms in Storm Bay, as the Marine Farming Planning Review Panel relied on the EPA imposing regulatory noise limits, but this did not occur. See, for example, Marine Farming Planning Review Panel (2018) *Draft Storm Bay North Marine Farming Development Plan: Report of the Marine Farming Planning Review Panel*, from [3.3.4] p 42, <https://nre.tas.gov.au/Documents/MFPRP%20Decision%20Report%20Draft%20Storm%20Bay%20North%20MFDP%20November%202017.pdf>.

<sup>35</sup> See, for example, Tasmanian Planning Commission (2021) *Decision and reasons under s35K(1)(a) and s35KB to modify draft LPS and amend Clarence LPS (including notices) 1 September 2021* at [455-456] p 72, [https://www.planning.tas.gov.au/\\_data/assets/pdf\\_file/0009/626904/Decision-and-reasons-under-s35K2a-and-s35KB-to-modify-draft-LPS-and-amend-Clarence-LPS-including-notices-1-September-2021.PDF](https://www.planning.tas.gov.au/_data/assets/pdf_file/0009/626904/Decision-and-reasons-under-s35K2a-and-s35KB-to-modify-draft-LPS-and-amend-Clarence-LPS-including-notices-1-September-2021.PDF).

<sup>36</sup> Refer to *State Planning Provisions*, Table C7.3 where the spatial extent of waterway and coastal protection areas are reduced to the lowest level of 10m in 13 zones.

<sup>37</sup> Australian Marine Sciences Association (2022) *Position Statement: Climate Change*, p 1, <https://www.amsa.asn.au/position-statements>

<sup>38</sup> The exact size costs of these events are not generally reported. See for example, Galea, S., Street, E. and Dunlevie, J. (2018) ‘Macquarie Harbour salmon: 1.35 million fish deaths prompt call to ‘empty’ waterway of farms’, Australian Broadcasting Corporation, Posted 29 May 2018, <https://www.abc.net.au/news/2018-05-29/salmon-deaths-in-macquarie-harbour-top-one-million-epa-says/9810720>.

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- <sup>39</sup> For a more general discussion of the impacts of warming waters on salmon farms, see Huon Aquaculture (2017) *Tasmanian Salmonid Industry Discussion Paper*, p 35, <https://www.huonaqua.com.au/wp-content/uploads/2017/08/Huon-Aquaculture-Salmonid-Industry-Discussion-Paper.pdf>.
- <sup>40</sup> Ibid, p 8, and Fisheries Research and Development Corporation (2016) *National impact from Tasmanian POMS outbreak*, <https://www.frdc.com.au/fish-vol-24-2/national-impact-tasmanian-poms-outbreak>.
- <sup>41</sup> Oliver, E., Benthuyssen, J., Bindoff, N., Hobday, A., Holbrook, N., Mundy C. & Perkins-Kirkpatrick, S. (2017) 'The unprecedented 2015/16 Tasman Sea marine heatwave', *Nature Communications*, Volume 8, pp 1-12.
- <sup>42</sup> Ling, S. & Keane, J. (2018) above n 7.
- <sup>43</sup> Aside from the power for the Minister to prescribe noxious fish and manage disease and pest outbreaks in fisheries and aquaculture, the Act does not provide the Minister with explicit powers to deal with many of the issues arising with climate change.
- <sup>44</sup> Warner, K., McCormack, T. & Kurnadi, F. (2021) *Pathway to Truth-Telling and Treaty: Report to Premier Peter Gutwein*, Recommendation 16, [https://www.dpac.tas.gov.au/\\_data/assets/pdf\\_file/0005/627242/Pathway\\_to\\_Truth-Telling\\_and\\_Treaty\\_251121.pdf](https://www.dpac.tas.gov.au/_data/assets/pdf_file/0005/627242/Pathway_to_Truth-Telling_and_Treaty_251121.pdf)
- <sup>45</sup> Ibid at Recommendation 17.
- <sup>46</sup> Ibid at Recommendation 18.
- <sup>47</sup> Lee, E. (2019) *Wave to Plate: Establishing a market for cultural fisheries in Tasmania*, Swinburne University of Technology, Melbourne, and University of Tasmania, Hobart, Report to FRDC, May 2019, pp 65 – 66, <https://www.frdc.com.au/sites/default/files/products/2016-204-DLD.pdf>
- <sup>48</sup> Ibid.
- <sup>49</sup> Stephenson, R. Hobday, A., Cvitanovic, C., Alexander, K., Begg, G., Bustamante, R., Dunstan, P., Frusher, S., Fudge, M., Fulton, E., Haward, M., Macleod, C., McDonald, J., Nash, K., Ogier, E., Pecl, G., Plagányi, E., van Putten, I., Smith, T. & Ward T. (2019) 'A practical framework for implementing and evaluating integrated management of marine activities' *Ocean & Coastal Management*, Volume 177, pp 127-138 at 135.
- <sup>50</sup> Ibid, and Smith, D., Fulton, E., Apfel, P., Cresswell, I., Gillanders, B., Haward, M., Sainsbury, K., Smith, A., Vince, J. & Ward, T. (2017) 'Implementing marine ecosystem-based management: lessons from Australia', *ICES Journal of Marine Science*, Volume 74, Issue 7, pp 1990–2003.
- <sup>51</sup> See for example, Peart, R. (2019) 'Sea Change Tai Timu Tai Pari: addressing catchment and marine issues in an integrated marine spatial planning process,' *Aquatic Conservation: Marine and Freshwater Ecosystems*, Volume 29, Issue 9, pp 1561–1573.
- <sup>52</sup> Ibid.
- <sup>53</sup> Ibid.
- <sup>54</sup> The FAO notes that "Stakeholder participation is vital for an effective fisheries management system, and for adapting management plans to climate change. This is the second foundation of climate-resilient fisheries..." Bahri, T., Vasconcellos, M., Welch, D.J., Johnson, J., Perry, R.I., Ma, X., & Sharma, R. (eds) (2021) *Adaptive management of fisheries in response to climate change*, FAO Fisheries and Aquaculture Technical Paper No. 667. Rome, FAO, **Error! Hyperlink reference not valid.** p 11.
- <sup>55</sup> Smith, D. et al. (2017), above n 50. See also Peart R. (2019), above n 51.
- <sup>56</sup> Arguably, by retaining the existing regulatory frameworks, Victoria has adopted the "pragmatic" approach to integrated management advocated by Stephenson, R. et al. (2019), above n 49.
- <sup>57</sup> Bahri, T. et al. (2021), above n 54, p 11.
- <sup>58</sup> Ibid, p 14.
- <sup>59</sup> For a discussion of climate-adaptive mechanisms that have been used in Tasmania, see Fogarty, H. & Petcl, G. (2021) 'Chapter 15: Lessons and recommendations for the climate adaptation of key Tasmanian fisheries' in Ibid.
- <sup>60</sup> Worboys, G., Lockwood, M., Kothari, A., Feary, S. & Pulsford, I. (eds) (2015) *Protected Areas Governance and Management*, ANU Press, Canberra, p 222.
- <sup>61</sup> Lauck, T. Clark, C., Mangel, M., & Munro, G. (1998) 'Implementing the precautionary principle in fisheries management through marine reserves', *Ecological applications*, Volume 8, Number 1, pp S72-S78.